

**REMARKS**

Claims 1-15 are all the claims pending in the application.

**I. Response to Claim Rejections under 35 U.S.C. § 103**

Claims 1-2, 4-6 and 8-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 06-065337 (hereinafter JP '337).

Applicants traverse the rejection.

Claim 1 of the present application is directed to a fluoropolymer aqueous dispersion which comprises a particle comprising a fluoropolymer dispersed in an aqueous medium in the presence of a nonionic surfactant. A supernatant for assaying as obtained by subjecting the fluoropolymer aqueous dispersion to the specific conditions recited in claim 1, shows a ratio ( $A^1/A^0$ ), which is the ratio between the total area ( $A^0$ ) under the detected line and the area ( $A^1$ ) under the detected line over a retention time period shorter than 16 minutes, of not lower than 0.4. The supernatant for assaying also has a fluorine-containing anionic surfactant content of not higher than 100 ppm.

The supernatant for assaying as obtained from the fluoropolymer aqueous dispersion of the present invention has a ratio ( $A^1/A^0$ ) of not lower than 0.4 and contains nonionic compound molecules ( $S^H$ ) which lower the viscosity-temperature dependency of the fluoropolymer aqueous dispersion. Page 20, lines 19-27 of the specification.

Therefore, the fluoropolymer aqueous dispersion of the present invention can maintain the viscosity thereof at low levels even upon temperature rises on the occasion of molding/processing. Thus, the workability thereof can easily be reproduced even upon changes in working environment conditions, and uniform film surfaces showing no cissing or cracking can be obtained therefrom. The fluoropolymer aqueous dispersion of the present invention is

also excellent in mechanical stability and is an excellent material for molding/processing. See the paragraph bridging pages 20-21 of the specification.

On the other hand, JP '337 does not teach suggest the element of the ratio ( $A^1/A^0$ ) or even recognize that the viscosity-temperature dependency is a function of the ratio ( $A^1/A^0$ ).

With regard to this point, the Examiner states that the stability of the fluoropolymer aqueous dispersion is a variable that can be modified by adjusting the content of the nonionic surfactant. (See page 3, lines 20-21 of the Office Action).

However, Applicants submit that the Examiner's position is not correct.

With respect to stability, the effect of the present invention is attributable to a viscosity-temperature dependency reduction. See the paragraph bridging pages 17-18, which states: "The ratio ( $A^1/A^0$ ) between the total area ( $A^0$ ) under the detected line and the area ( $A^1$ ) under the detected line over a retention time period shorter than 16 minutes should be not lower than 0.4 so that the viscosity-temperature dependency may be reduced, and a preferred upper limit from the mechanical stability viewpoint is 0.6".

On the other hand JP '337 discloses that the addition of nonionic surfactant prevents aggregation. See paragraph [0038]. The amounts of aggregates were measured in the Examples. See Table 1. Thus, the stability in JP '337 relates to dispersion stability.

With respect to the Examiner's statements regarding the content of the nonionic surfactant, Applicants note that the ratio ( $A^1/A^0$ ) does not represent the content of nonionic surfactant.  $A^0$  represents a total content of nonionic surfactant. Indeed, the same content of nonionic surfactants provide different ( $A^1/A^0$ ) value as can be seen from a comparison of examples 3 and 4 and comparative example 2 in the present specification.

Thus, although JP '337 discloses the content and HLB of nonionic surfactant, JP '337 does not disclose, teach or suggest the ratio of ( $A^1/A^0$ ) nor recognize its advantageous effects. A variable must be recognized as contributing to a specific result before it can be acknowledged as *prima facie* obvious to determine the optimum or workable range of the variable. Therefore the Examiner has not set forth a *prima facie* showing of obviousness.

Claim 9 of the present application is directed to a method of producing the fluoropolymer aqueous dispersion according to Claim 1, which comprises adding a nonionic surfactant (B) to a pretreatment fluoropolymer aqueous dispersion containing a nonionic surfactant (A). The supernatant for assaying as obtained by subjecting said pretreatment fluoropolymer aqueous dispersion to 30 minutes of centrifugation at 25°C and at a gravitational acceleration of 1677G has a fluorine-containing anionic surfactant content of not higher than 100 ppm. The nonionic surfactant (A) has an HLB of 12 to 14 and the nonionic surfactant (B) has an HLB of 13 to 15.

The method of claim 9 comprises adding a nonionic surfactant (B) having an HLB of 13 to 15 to a pretreatment fluoropolymer aqueous dispersion containing a nonionic surfactant (A) having an HLB of 12 to 14. The supernatant for assaying as obtained from the pretreatment fluoropolymer aqueous dispersion has a fluorine-containing anionic surfactant content of not higher than 100 ppm.

Therefore, the method of the invention can produce a fluoropolymer aqueous dispersion low in viscosity-temperature dependency.

In contrast JP '337 broadly discloses HLB, but does not disclose the addition of a nonionic surfactant (B) to a pretreatment fluoropolymer aqueous dispersion having the claimed content of the fluorine-containing anionic surfactant.

Furthermore, JP '337 discloses a different purpose of dispersion stability and does not teach or suggest viscosity-temperature dependency. Therefore, there is no suggestion or motivation to modify the reference.

Thus, JP '337 does not teach or suggest all elements of the present invention as recited in present claim 1. Claims 2, 4-6 and 8-10 depend from claim 1 and are patentable over JP '337 for at least the same reasons. Additionally, JP '337 does not teach or suggest the method of claim 9 for the reasons set forth above. Thus, for these additional reasons, claims 9 and 10 are patentable over JP '337.

Accordingly, Applicants respectfully request withdrawal of the rejection.

**B. JP '337 in view of Hoshikawa et al (JP '034)**

Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '337 as applied to claim 9 and in view of Hoshikawa et al (JP 2003-268034 based on US 7,141,620 as the English equivalent).

Applicants traverse the rejection.

Claim 11 depends from claim 9 and JP '337 does not teach or suggest the elements of claim 9 for the reasons set forth above. Hoshikawa (JP '034) fails to remedy the deficiencies of JP '337. Specifically, in Hoshikawa (JP '034), surfactant (a) was added after concentration of dispersions containing surfactants (a)-(e) in the working Examples. Surfactant (a) has an HLB of 12. Thus, the examples of Hoshikawa (JP '034) correspond to comparative example 2 in the present application wherein the TFE polymer aqueous dispersion showed rapid increase in viscosity as the temperature was raised. Based on the data in the present specification, it can be seen that the present invention provides unexpectedly superior results. Thus, even if JP '337 and Hoshikawa (JP '034) were combined the present invention would not have been achieved.

Accordingly, the present invention is patentable over the cited references, whether taken alone or in combination.

Applicants respectfully request withdrawal of the rejection.

**C. JP '337 in view of Hoshikawa (US '207)**

Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '337 as applied to claim 9 and further in view of Hoshikawa et al (US 6,498,207).

Applicants traverse the rejection.

Claim 12 depends from claim 9 and JP '337 does not teach or suggest the elements of claim 9 for the reasons set forth above. Hoshikawa (US '207) fails to remedy the deficiencies of JP '337 in that it does not disclose the addition of nonionic surfactant (B) to a pretreatment fluoropolymer aqueous dispersion having the claimed content of the fluorine-containing anionic surfactant. Thus, even if JP '337 and Hoshikawa (US '207) were combined the present invention would not have been achieved. Accordingly, the present invention is patentable over the cited references, whether taken alone or in combination.

Withdrawal of the rejection is respectfully requested.

**D. Doughty, Jr. et al in view of Hirono (JP '337)**

Claims 1-10 and 12-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Doughty, Jr., et al (US 3,855,191) in view of Hirono et al (JP 06-065337).

Applicants traverse the rejection.

Doughty, Jr., et al does not disclose nonionic surfactants and JP '337 does not disclose the ratio of  $A^1/A^0$ . Thus, even if the references were combined, all elements of the present claim 1 and 9 are not taught and the present invention would not have been achieved. Thus, the present invention is not rendered obvious by the cited references.

Claims 13-15 depend from claim 1 and are patentable for at least the same reasons. Further, the fluoropolymer powder of the present invention has good moldability/processability and is useful, for example, as a raw material for fluoropolymer moldings excellent in mechanical stability and other physical properties. See page 31, lines 8-13 of the present specification.

The fluoropolymer molding of the invention is excellent in surface characteristics, mechanical characteristics and other physical properties. See page 33, lines 1-6 of the present specification.

Accordingly, Applicants respectfully request withdrawal of the rejection.

**E. Doughty, Jr., et al in view of Hirono (JP '337) and further in view of Hoshikawa et al (JP '034)**

Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Doughty, Jr., et al in view of Hirono et al (JP 06-065337) as applied to claim 9 and further in view of Hoshikawa et al (JP 2003-268034).

Applicants traverse the rejection.

Claim 11 depends from claim 9 and Doughty, Jr., et al in view of JP '337 does not teach or suggest the elements of claim 9 for the reasons set forth above. Hoshikawa (JP '034) fails to remedy the deficiencies of Doughty, Jr., et al and JP '337. Specifically, in Hoshikawa (JP '034), surfactant (a) was added after concentration of dispersions containing surfactants (a)-(e) in Examples. Surfactant (a) has an HLB of 12. Thus, the examples of Hoshikawa (JP '034) correspond to comparative example 2 in the present application. Based on the data in the present specification, it can be seen that the present invention provides unexpectedly superior results. In view of the above, the present invention is patentable over the cited references, whether taken

alone or in combination. Thus, even if the references were combined, the present invention would not have been achieved.

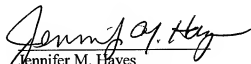
Accordingly, Applicants respectfully request withdrawal of the rejection.

## II. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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23373

CUSTOMER NUMBER

Date: June 18, 2008